U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

EXAMPLE BLASTING SAFETY PLAN

for work near

Water Reservoir in Randomtown, Mystate

August, 1998

Prepared by U.S. Geological Survey

SIGNATURE PAGE

Each employee, prior to participating in field activities, must acknowledge review of this Blasting Safety Plan. Each employee is largely responsible for his or her own safety as well as for the safety of co-workers on the job site. By signing this page, employees acknowledge that they have read and understand this Blasting Safety Plan.

Employee	Primary Responsibility	Signature	Date
Jane Chief	Project Chief, responsible for coordinating project activities. Assists in tasks other than blasting		
John Blaster	Master Blaster, site safety officer		
Steve Seismic	Assistant Blaster, assists in all aspects of seismic refraction at this site.		
Stephanie Acoustic	Assists in general operations of seismic refraction unrelated to blasting		
Jeff Hydro	Supervisory Hydrologist/Ground- Water Specialist		
Walter Observer	Metropolitan District Commision; will observe operations/provide assistance		

APPROVALS

_____	_____
Project Chief Signature	Date
_____	_____
Project Safety Officer Signature	Date
_____	_____
CT District Safety Officer Signature	Date

CONTENTS

FIGURES

APPENDIX

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

BLASTING SAFETY PLAN

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INTRODUCTION

The Metropolitan District Commission has asked that the U.S. Geological Survey (USGS)Water Resources Division (WRD) perform an investigation of sand and gravel resources, and their hydrologic importance, in areas surrounding the **Water Reservoir, Randomtown, Mystate.**

The purpose of this Blasting Safety Plan (BSP) is to protect authorized individuals during the performance of duties associated with the seismic refraction surveys, while minimizing potential exposure to hazards by unauthorized individuals.

The BSP is designed to meet the requirements of the U.S Geological Survey (USGS) regulations on blasting safety (USGS Handbook 445-2-H, Chapter 17).

PROJECT ON-SITE PERSONNEL AND ORGANIZATION

Jane Chief, Project Chief, Responsible for all aspects of the project
John Blaster, Master Blaster: Responsible for general blasting safety
Steve Seismic, Master Blaster in training/ Hydrologist: will assist the Master Blaster
Stephanie Acoustic, will assist in seismic surveys
Walter Observer, MDC representative, may be present to observe/assist

John Blaster and Steve Seismic will be responsible for all blasting activities since both received Blasting Safety Training in 1997. Other employees will work under the guidance of these two persons.

DESCRIPTION OF FIELD ACTIVITIES

Seismic Surveys are planned along Smith Road, Mill Dam Rd, and Phelps Rd. in Randomtown on MDC Property. Surveys are also planned along a trail on MDC property in Randomtown, located north of Rte 100, and south of Pine Hill Rd. Work will be primarily conducted before August 14, 1998.

EXPLOSIVES

A two part explosive, manufactured by Kinepak, will be used as the sound generator for the seismic surveys. This type of explosive is only considered an explosive after the two parts are mixed. Prior to mixing, the individual components are not subject to special considerations by the Federal Department of Transportation. However, each of the two components will be transported to the site in separate vehicles.

Figure 1. General location map of study area

Eventhough the Dupont detonators (EBW exploding bridge wire) that will be used are safe-guarded against premature detonation by static electricity, if any indications of thunder storms or atmospheric disturbances exist field work will be halted. When not in use the detonators will be stored in an explosives day chest. Additionally, the detonators will be transported to the site in the vehicle that is carrying the dry component of the explosive. Day boxes will be marked with a sticker indicating that these are explosive, 1.4d

The explosives will be mixed and the caps will be removed from the day chest on a "as needed" basis, under the direction of the Master Blaster. The master blaster on site will direct the mixing, capping, and placing of the explosives. Additionally, the master blaster will carry the shunt key and will act as the firing officer. It is estimated that three (3) cases (each containing 96 1/3 pound sticks) of two- part explosives and 100 detonators will be needed to complete the project.

POTENTIAL HAZARDS

The most significant hazard associated with the field operations associated with this project are the dangers created by the use of a Class A explosive. Most of these have been dealt with in other part of this plan. One that has not, is fly rock. In order to minimize the surficial expression of the charge, the charge weight will be minimized and will be seated at least three to four feet below the surrounding land surface. A heavy weight canvas tarp will be laid over the shothole to minimize flying debris.

Other Safety Hazards:

Other potential hazards associated with field activities include poison ivy and other poisonous plants, ticks, snakes, small mammals and rodents (bites, rabies), and humans (un-authorized personnel).

TRAINING PROGRAM

The USGS WRD personnel that are authorized to work on the site and their duties are listed above. At least two members of principal project personnel entering or working on the site will have completed First Aid / CPR and blasting training courses. Any personnel not meeting this criteria will only be permitted on site accompanied by the master blaster or the project chief. The Project Chief will maintain training records as required.

SAFETY PROTOCOL

Handling Misfires

On occasion, the personnel may encounter a misfire, this occurs when the charge is delayed in firing, or does not fire at all. Proper procedure is essential in maintaining site safety under this circumstance.

o First, the firing sequence should be repeated

o Second, provided no initiation results from the first step, the safety key should be removed from the blaster, and all firing - circuit connections checked both by visual inspection and tester. If current failure is found to be the cause of misfire, it should be repaired, and the firing sequence repeated.

o Third, if the shot does not fire and the cap has not detonated, all personell must wait a minimum of thirty minutes before attempting to dig/remove the explosive.

If shot is dug, it should be done slowly, and extreme care must be exercised. Leg wires should not be pulled out of cap while digging.

Personal Protective Equipment

Personal protective equipment should provide adequate protection during the performance of field procedures. Worker protective clothing includes the following:

o Trousers and long-sleeved shirt or coveralls.
o Leather boots (preferably steel-toed)
o Hard hat

When work to be performed involves using a power auger or digging bar worker protective clothing includes the following:

o Trousers and long-sleeved shirt or coverall
o Leather or rubber boots (preferably steel-toed)
o Hard hat
o Leather work gloves
o Eye protection

The following items will be available in the event of an emergency:

o Eye wash kits
o First aid kit (fully stocked)
o Mobile cellular phone

Site Control

A site map (figure 1) has been prepared and distributed to all workers who will be working at the site. Personnel on-site will be adequately trained for the tasks they will perform, and no unnecessary personnel or equipment will be allowed on site. Operations will be conducted in such a way as to reduce the possibility of injury to either authorized or unauthorized individuals.

Before work each day, workers will be briefed on the work to be done and any change in potential hazards at the site. Effective communication networks will be established. The buddy system will be used to provide assistance if needed and to monitor for heat or cold stress.

Safety Standard Operation Procedures

1. This Blasting safety Plan will be made available to all personnel involved in field activities. All personnel working on the site will be thoroughly briefed by the Project Chief and the Project Safety Officer prior to the start of field activities about the type of work to be done, anticipated hazards, equipment to be used and worn, safety precautions, emergency procedures, and procedures for reporting accidents or injuries. All personnel will read and sign this Blasting safety Plan.

2. A shower is recommended for each person working onsite as soon as possible after removing any outer protective clothing at the end of the day. This will minimize possible effects of poison ivy and ticks.

3. Work onsite will be performed in teams of two or more people. Visual contact is required (if possible) for onsite work. Otherwise continuous communications shall be kept via radio, walkie talkie, or other devices.

4. A fully stocked first-aid kit will be on site at all times.

5. No seismic activities will be conducted during thunderstorms or during periods of potential lightning.

6. All seismic operations will be restricted to daylight hours.

7. As per State Law, no blasting will be permitted on Sunday. Saturday work will also be avoided due to the increase of hiker/biker traffic on trails in the area.

8. Emergency response procedures will be understood by all site personnel. Any visitors to the site will be briefed by the project safety officer, concerning site emergency procedures.

Recordkeeping

A site log book will be kept to record all activities at the site. Each site visit must be recorded, including the names of personnel present, date and time of visit(s), and reason for visit(s). Any accident must be clearly and completely documented and reported. A separate “Hazard Elimination Log” shall be used to record all hazardous situations encountered and their abatement action.

Emergency Plans

Prior to doing work on site, all personnel will be thoroughly briefed on the emergency procedures to be followed in the event of an accident. Locations of public or mobile phones will be identified prior to starting field work. A mobile phone will be available during all field activities.

Any unusual occurrences or conditions relating to a person’s well-being during work activities, such as adverse weather, will be recorded in the site log book by the Project Safety Officer, and the appropriate supervisor will be notified.

All personnel will be briefed on general first-aid procedures by the Project Safety Officer. In addition, a fire extinguisher and a stocked first-aid kit will be on hand. Eye wash kits will be available on-site. Drinking water will be available at all times.

In cases of perceived life-threatening or severe trauma, *911 will be dialed on the cell phone for Emergency Medical Services. The injured person shall be transported to Nearest General Hospital at the Mystate Health Center following the emergency route described below. All personnel will be familiar with this route before beginning work at the site.

From Burlington Location:

From Mill Dam, Smith, or Phelps Rd.-- Return to MDC entrance on Mill Dam Rd. Turn left onto Clear Brook Road, Turn right onto Barnes Hill Road, Take a left onto Route 4, follow Rte 4 past I-100 and continue east to Neasrest General Hospital Emergency Room. This is a trip of about 10 miles

From New Hartford Location

Follow trail or State Forest Roads to Rte 202, take a left onto Route 202 turn right onto Rte 179 to Rte 4 east, continue on Route 4 east past I-84 to the Nearest General Hospital at the Mystate Medical Center. This is a trip of about 10 miles.

Emergency Phone Numbers

The following phone numbers can be used to reach local emergency services:

Neasrest General Hospital Emergency Dept	860-679-2588
Randomtown Fire Department	cell phone *911 or
Randomtown Police Resident Trooper **non-emerg only**	cell phone *911 or 860-673-4856
Nexttown Fire Department	cell phone *911 or 860-379-4936
Nexttown Resident Trooper	cell phone *911 or 860-379-8621
State Fire Marshals office (Middletown)	860-685-8380
Metropolitan District Commission Patrol	860-379-3671

FIGURE 3.-- Emergency route map

APPENDIX

Material Data Safety Sheets